

CLAIMS

1. A method for scheduling grant channels to carry grant messages to a plurality of scheduled mobile stations in an area of a communications network, the method comprising:

assigning to a current mobile station in an ordering of the plurality of scheduled mobile stations, a previously unassigned grant channel from a list of grant channels monitored by the current mobile station; and

repeating the assignment for a next mobile station in the ordering of scheduled mobile stations, if there are more mobile stations to be processed in the ordering of the scheduled mobile stations.

2. The method of claim 1, further comprising:

rearranging the ordering for the plurality of scheduled mobile stations after the mobile stations in the ordering have been assigned grant channels, and repeatedly assigning grant channels to mobile stations, until every grant channel has been assigned a mobile station in the ordering.

3. The method of claim 2, wherein rearranging the ordering includes rearranging the order of the list of grant channels monitored by the current mobile station.

4. The method of claim 2, wherein rearranging the ordering includes rotating the order of the plurality of scheduled mobile stations.

5. The method of claim 1, wherein the previously unassigned grant channel includes a first available grant channel from the list of grant channels monitored by the current mobile station.

6. The method of claim 1, wherein the plurality of scheduled mobile stations is a subset of a total number of mobile stations operating within the area.

7. A method for scheduling grant channels to carry grant messages to a plurality of scheduled mobile stations in a sector of a communications network, the method comprising:

assigning at least one grant channel to each scheduled mobile station in an ordering of the scheduled mobile stations for monitoring;

assigning to a current mobile station in the ordering, a grant channel that is monitored by the current mobile station and is not previously assigned to the current mobile station;

changing the current mobile station to a next mobile station in the ordering of scheduled mobile stations, and repeating the assigning of a previously unassigned monitored grant channel, if there are more mobile stations to be processed in the ordering of scheduled mobile stations.

8. The method of claim 7, further comprising:

rearranging the ordering for the plurality of scheduled mobile stations after the mobile stations in the ordering have been assigned grant channels, and repeatedly assigning grant channels to mobile stations, until every grant channel has been assigned a mobile station in the ordering.

9. The method of claim 8, wherein assigning at least one grant channel includes assigning a first plurality of mobile stations to every grant channel, in order.

10. The method of claim 9, wherein the first plurality of mobile stations is a subset of a total number of mobile stations operating within the sector.

11. The method of claim 10, wherein assigning at least one grant channel further includes assigning remainder of mobile stations to a first same number of grant channels in order.

12. The method of claim 8, wherein assigning at least one grant channel includes randomly selecting a set of grant channels from the at least one grant channel to assign to each mobile station to monitor.

13. The method of claim 8, wherein the previously unassigned grant channel includes a first available grant channel from the at least one grant channel monitored by the current mobile station.

14. The method of claim 13, wherein rearranging the order includes rearranging the order of the at least one grant channel monitored by the current mobile station.

15. The method of claim 8, wherein rearranging the order includes rotating the order of the plurality of scheduled mobile stations.

16. The method of claim 8, wherein the plurality of scheduled mobile stations is a subset of a total number of mobile stations operating within the sector.

17. A base station in a CDMA communications network, the base station comprising:

a controller configured to schedule grant channels to carry grant messages to a plurality of scheduled mobile stations in an area of the CDMA communications network, the controller including a grant channel assignment module that operates to:

assign to a current mobile station in an ordering of the plurality of scheduled mobile stations, a previously unassigned grant channel from a list of grant channels monitored by the current mobile station; and

repeat the assignment for a next mobile station in the ordering of scheduled mobile stations, if there are more mobile stations to be processed in the ordering of the scheduled mobile stations;

a modulator configured to process and spread the grant messages; and a transmitter unit configured to condition the processed grant messages, to generate a forward link signal, and to transmit the forward link signal on grant channels.

18. The base station of claim 17, wherein each message in the grant messages include messages specific to a mobile station.
19. The base station of claim 17, wherein the grant messages include Reverse Enhanced Supplemental Channel (R-ESCH) grants.
20. The base station of claim 17, wherein the controller includes:
a rearrangement module configured to rearrange the order for the plurality of scheduled mobile stations, and to repeat the assignment process executed by the grant channel assignment module, if not every grant channel has been assigned a mobile station, if not every grant channel has been assigned a mobile station.
21. The base station of claim 20, wherein the rearrangement module rearranges the order of the list of grant channels monitored by the current mobile station.
22. The base station of claim 21, wherein the rearrangement module rearranges the list order by rotating the order of the plurality of scheduled mobile stations.
23. The base station of claim 17, wherein the previously unassigned grant channel includes a first available grant channel from the list of grant channels monitored by the current mobile station.
24. The base station of claim 17, wherein the plurality of scheduled mobile stations is a subset of a total number of mobile stations operating within the area.
25. A transceiver controller in a CDMA communications network, the transceiver controller comprising:
a grant channel assignment module configured to assign grant channels to carry grant messages to a current mobile station in an ordering of a plurality of scheduled mobile stations in an area of the CDMA communications network,

a previously unassigned grant channel from a list of grant channels monitored by the current mobile station, and to repeat the assignment for a next mobile station in the ordering of scheduled mobile stations, if there are more mobile stations to be processed in the ordering of the scheduled mobile stations.

26. The transceiver controller of claim 25, wherein each message in the grant messages include messages specific to a mobile station.

27. The transceiver controller of claim 25, wherein the grant messages include Reverse Enhanced Supplemental Channel (R-ESCH) grants.

28. The transceiver controller of claim 25, wherein the grant channel assignment module includes:

a rearrangement module configured to rearrange the order for the plurality of scheduled mobile stations, and to repeat the assignment process executed by the grant channel assignment module, if not every grant channel has been assigned a mobile station, if not every grant channel has been assigned a mobile station.

29. The transceiver controller of claim 28, wherein the rearrangement module rearranges the order of the list of grant channels monitored by the current mobile station.

30. The transceiver controller of claim 29, wherein the rearrangement module rearranges the list order by rotating the order of the plurality of scheduled mobile stations.

31. The transceiver controller of claim 25, wherein the previously unassigned grant channel includes a first available grant channel from the list of grant channels monitored by the current mobile station.

32. The transceiver controller of claim 25, wherein the plurality of scheduled mobile stations is a subset of a total number of mobile stations operating within the area.

33. A CDMA communications network, comprising:
 - a first plurality of mobile stations operating within the CDMA communications network; and
 - a base station, comprising:
 - a controller configured to schedule grant channels to carry grant messages to a plurality of scheduled mobile stations in an area of the CDMA communications network, the controller including a grant channel assignment module that operates to assign to a current mobile station in an ordering of the plurality of scheduled mobile stations, a previously unassigned grant channel from a list of grant channels monitored by the current mobile station; and repeat the assignment for a next mobile station in the ordering of scheduled mobile stations, if there are more mobile stations to be processed in the ordering of the scheduled mobile stations;
 - a modulator configured to process and spread the grant messages; and
 - a transmitter unit configured to condition the processed grant messages, to generate a forward link signal, and to transmit the forward link signal on grant channels.
34. The communications network of claim 33, wherein the controller in the base station further includes:
 - a rearrangement module configured to rearrange the order for the plurality of scheduled mobile stations, and to repeat the assignment process executed by the grant channel assignment module, if not every grant channel has been assigned a mobile station, if not every grant channel has been assigned a mobile station.
35. The communications network of claim 34, wherein the rearrangement module rearranges the order of the list of grant channels monitored by the current mobile station.

36. The communications network of claim 35, wherein the rearrangement module rearranges the list order by rotating the order of the plurality of scheduled mobile stations.
37. The communications network of claim 33, wherein the previously unassigned grant channel includes a first available grant channel from the list of grant channels monitored by the current mobile station.
38. The communications network of claim 33, wherein the plurality of scheduled mobile stations is a subset of a total number of mobile stations operating within the area.